IN THE CLAIMS:

Please cancel claims 1-13, and add new claims 14-38, as shown below in the detailed listing of all claims which are, or were, in this application:

Claims 1-13 (Canceled).

14. (New) A ligand binding bioaffinity assay, comprising

binding an analyte with a nanoparticle specific to the analyte to form a conjugate,

detecting the conjugate,

wherein said nanoparticle comprises a self-assembling shell built up of several protein and/or peptide subunits, which protein and/or peptide subunits can be of one or several different types, assembled to form the shell having an inner surface facing the inside and an outer surface facing the outside of said particle, wherein

a) one or several of the types of subunits have one or several genetically fused first binding moieties per type of subunit with the binding moiety facing the outside of the particle for binding of any specific ligand binding protein; and

b) i) the particle contains within its shell a marker and/or

ii) one or several of the types of subunits have one or several genetically fused second binding moieties per type of subunit with the binding moiety facing the inside and/or the outside of the particle binding a marker; and

c) the marker or markers enable detection of the particle;

and wherein the shell of the nanoparticle is a recombinant apoferritin particle or a recombinant Dpr/Dps protein particle.

15. (New) The ligand binding bioaffinity assay of claim 14, wherein the shell of the nanoparticle is a Dpr/Dps protein selected from the group consisting of Dpr/Dps proteins produced by *Streptococci*, *Listeria*, *Helicobacter* and *Escherichia*.

16. (New) The ligand binding bioaffinity assay of claim 14, wherein the marker is selected from the group consisting of an enzyme, luminescent protein, a fluorescent or coloured protein or organic molecule, and a rare earth metal.

17. (New) The ligand binding bioaffinity assay of claim 16, wherein the marker is a protein.

18. (New) The ligand binding bioaffinity assay of claim 16, wherein the marker is a lanthanide selected from the group consisting of Tb, Eu, Sm and Dy.

19. (New) The ligand binding bioaffinity assay of claim 14, wherein one or several of the types of subunits have one or several genetically fused third binding moieties per type of subunit with the binding moiety facing the outside of the particle for binding to a solid support.

20. (New) The ligand binding bioaffinity assay of claim 14, wherein a first binding moiety is selected from the group consisting of protein A, protein G, protein L, calmodulin binding peptide (CBP) and biotin carboxyl carrier protein (BCCP).

21. (New) The ligand binding bioaffinity assay of claim 14, wherein a first binding moiety is an antibody against one of members of the group consisting of CRP, ABO blood group antigens and TSH.

22. (New) The ligand binding bioaffinity assay of claim 14, wherein a second binding moiety is a binding moiety selected from the group consisting of protein A, protein G, protein L, calmodulin binding protein (CBP) and biotin carboxyl carrier protein (BCCP).

23. (New) The ligand binding bioaffinity assay of claim 14, wherein a second binding moiety is an antibody against one of the group consisting of CRP, ABO blood group antigens and TSH.

24. (New) The ligand binding bioaffinity assay of claim 14, wherein the radius of the nanoparticle is from 10 to 40 nm.

25. (New) The ligand binding bioaffinity assay of claim 14, wherein the number of subunits is more than 8.

26. (New) A nanoparticle, useful for ligand binding bioaffinity assays, comprising a self-assembling shell built up of several protein and/or peptide subunits, which protein and/or peptide subunits can be of one or several different types, assembled to form the shell having an inner surface facing the inside and an outer surface facing the outside of said particle, wherein

a) one or several of the types of subunits have one or several genetically fused first binding moieties per type of subunit with the binding moiety facing the outside of the particle for binding of any specific ligand binding protein; and

b) i) the particle contains within its shell a marker selected from the group consisting of an enzyme, luminescent protein, a fluorescent or colored protein or organic molecule, and a rare earth metal and/or

ii) one or several of the types of subunits have one or several genetically fused second binding moieties per type of subunit with the binding moiety facing the inside and/or the outside of the particle binding a marker selected from the group consisting of an enzyme, luminescent protein, a fluorescent or colored protein or organic molecule, and a rare earth metal; and

c) the marker or markers enable detection of the particle;

and wherein the shell of the nanoparticle is a recombinant apoferritin particle or a recombinant Dpr/Dps protein particle.

27. (New) The nanoparticle of claim 26, wherein first binding moieties are fused to the N-terminus of the apoferritin or Dpr/Dps protein.

28. (New) The nanoparticle of claim 26, wherein the first binding moieties are selected from the group consisting of monoclonal antibodies, polypeptides, receptors, recombinant antibodies or antibody fragments, aptamers, engineered proteins, and derivatives thereof.

29. (New) The nanoparticle of claim 28, wherein the marker is a protein.

30. (New) The nanoparticle of claim 26, wherein the marker is a lanthanide.

31. (New) The nanoparticle of claim 26, wherein one or several of the types of subunits have one or several third genetically fused binding moieties per type of subunit with the binding moiety facing the outside of the particle for binding to a solid support.

32. (New) The nanoparticle of claim 28, wherein a first binding moiety is selected from the group consisting of protein A, protein G, protein L, calmodulin binding peptide (CBP) and biotin carboxyl carrier protein (BCCP).

33. (New) The nanoparticle of claim 28, wherein a first binding moiety is an antibody against one of members of the group consisting of CRP, ABO blood group antigens and TSH.

34. (New) The nanoparticle of claim 26, wherein a second binding moiety is a binding moiety selected from the group consisting of protein A, protein G, protein L, calmodulin binding protein (CBP) and biotin carboxyl carrier protein (BCCP).

35. (New) The nanoparticle of claim 26, wherein a second binding moiety is an antibody against one of the group consisting of CRP, ABO blood group antigens and TSH.

36. (New) The nanoparticle of claim 26, wherein the radius of the nanoparticle is from 10 to 40 nm.

37. (New) The nanoparticle of claims 26, wherein the number of subunits is more than 8.

38. (New) Kit for a ligand binding immunoassay comprising the nanoparticle of claim 26.